Milton Quadrangle, Maine

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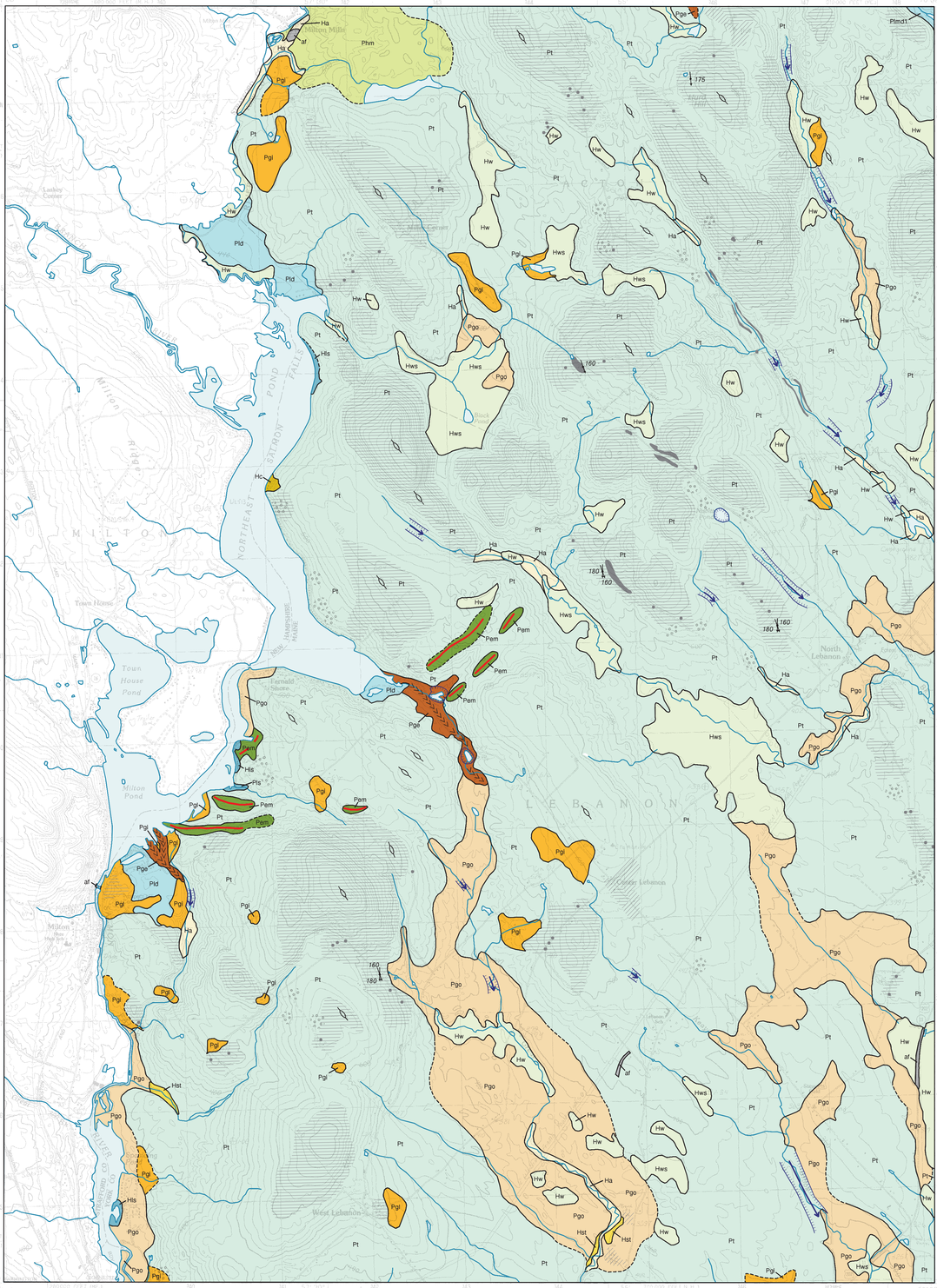
For additional information, see Open-File Report 99-122.

Surficial Geology



SOURCES OF INFORMATION

Surficial geologic mapping by Andres Meglioli completed during the 1989 field season; funding for this work provided by the Maine Geological Survey. Geologic unit designations and contacts revised and matched to adjacent quadrangles in 1999 by MGS geologists.

Quadrangle Location

SCALE 1 : 24,000

1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET

TRUE NORTH

Topographic base from U.S. Geological Survey Milton quadrangle, scale 1:24,000 using standard U.S. Geological Survey topographic map symbols.

The use of industry, firm, or local government names on this map is for location purposes only and does not impute responsibility for any present or potential effects on the natural resources.

Hls **Lakeshore deposits -** Sand and gravel deposited on shorelines of modern lakes.

Hws **Swamp -** Wetland with abundant tree cover. Occasional open spaces. Locally underlain by sand and gravel.

Hw **Wetland, undifferentiated -** Fine-grained sediments and organic material deposited in poorly drained areas.

Ha **Alluvium -** Usually small deposits of sand and gravel associated with flood plains of modern streams and rivers.

Hst **Stream terrace -** Largely composed of fine gravel and sand.

Hc **Colluvium -** Loose and unsorted deposit. Largely composed of boulders and cobbles. Includes minor percentages of sand and gravel.

Pls **Lakeshore deposits -** Sand or gravel deposit on ancient lake shoreline.

$Plmd_1$ **Glacial Lake Mousam deposit -** Delta deposited in earliest stage of glacial Lake Mousam. Composed of sand and gravel.

Pld **Lacustrine delta -** Sand and gravel deposited in glacial lake in western part of the quadrangle.

Pgo **Outwash -** Gravel and sand. Commonly associated either with a flat topographic surface (outwash plain) or with terraces. Deposited in valleys by glacial meltwater streams.

Pgi **Ice-contact deposits -** Poorly sorted gravel and sand. Commonly found at the foot of steep slopes or as isolated thin deposits surrounded by till. Deposited adjacent to glacial ice by meltwater streams.

Pge **Esker ridge -** Sand and gravel deposited by subglacial stream. Chevrons point in direction of meltwater flow.

Pem **End moraine -** Moraine ridge chiefly composed of till (silty-sandy diamicton) deposited at the margin of the late Wisconsin glacier.

Phm **Hummocky moraine -** Area of hummocky topography, with mounds or ridges of glacial sediments. Probably consists mostly of till, locally interstratified with water-laid deposits.

Pt **Till -** Very poorly sorted, non-stratified mixture of silt, sand, and clay with lesser amounts of boulders, cobbles, and pebbles. Deposited from glacial ice. Locally shows fissility and is highly compacted where deposited as lodgement till against the bedrock surface.

Bedrock outcrop - Ruled pattern indicates areas where surficial sediments are usually less than 10 ft (3 m) thick. Gray dots show location, and shapes where possible, of outcrops.

af **Artificial fill -** Mainly composed of coarse gravel and sand or various man-made materials.

Area of many large boulders (>1 m).

Contact between geologic map units. Dashed where location is very uncertain.

Area where original topography has been modified or obliterated by excavation.

135 **Glacial striation locality -** Dot marks point of observation; arrow shows ice movement direction inferred from striation.

Channel - Channel eroded by glacial meltwater and/or postglacial stream. Hachured lines indicate channel margins. Arrow shows known or inferred direction of flow.

Kettle - Depression created by melting of buried glacial ice and collapse of overlying sediments.

Glacially streamlined hill - Includes hills and bedrock knobs that have been elongated parallel to the flow of glacial ice.

Axis of end-moraine ridge.

USES OF SURFICIAL GEOLOGY MAPS

A surficial geology map shows all the loose materials such as till (commonly called hardpan), sand and gravel, or clay, which overlie solid ledge (bedrock). Bedrock outcrops and areas of abundant bedrock outcrops are shown on the map, but varieties of the bedrock are not distinguished (refer to bedrock geology map). Most of the surficial materials are deposits formed by glacial and deglacial processes during the last stage of continental glaciation, which began about 25,000 years ago. The remainder of the surficial deposits are the products of postglacial geologic processes, such as river floodplains, or are attributed to human activity, such as fill or other land-modifying features.

The map shows the areal distribution of the different types of glacial features, deposits, and landforms as described in the map explanation. Features such as striations and moraines can be used to reconstruct the movement and position of the glacier and its margin, especially as the ice sheet melted. Other ancient features include shorelines and deposits of glacial lakes or the glacial sea, now long gone from the state. This glacial geologic history of the quadrangle is useful to the larger understanding of past earth climate, and how our region of the world underwent recent geologically significant climatic and environmental changes. We may then be able to use this knowledge in anticipation of future similar changes for long-term planning efforts, such as coastal development or waste disposal.

Surficial geology maps are often best used in conjunction with related maps such as surficial materials maps or significant sand and gravel aquifer maps for anyone wanting to know what lies beneath the land surface. For example, these maps may aid in the search for water supplies, or economically important deposits such as sand and gravel for aggregate or clay for bricks or pottery. Environmental issues such as the location of a suitable landfill site or the possible spread of contaminants are directly related to surficial geology. Construction projects such as locating new roads, excavating foundations, or siting new homes may be better planned with a good knowledge of the surficial geology of the site. Refer to the list of related publications below.

OTHER SOURCES OF INFORMATION

1. Meglioli, A., 1999, Surficial geology of the Milton 7.5-minute quadrangle, York County, Maine: Maine Geological Survey, Open-File Report 99-122, 3 p.
2. Meglioli, A., 1998, Surficial materials of the Milton quadrangle, Maine: Maine Geological Survey, Open-File Map 98-173.
3. Neil, C. D., 1998, Significant sand and gravel aquifers of the Milton quadrangle, Maine: Maine Geological Survey, Open-File Map 98-139.
4. Thompson, W. B., 1979, Surficial geology handbook for coastal Maine: Maine Geological Survey, 68 p. (out of print)
5. Thompson, W. B., and Borns, H. W., Jr., 1985, Surficial geologic map of Maine: Maine Geological Survey, scale 1:500,000.
6. Thompson, W. B., Crossen, K. J., Borns, H. W., Jr., and Andersen, B. G., 1989, Glaciomarine deltas of Maine and their relation to late Pleistocene-Holocene crustal movements, *in* Anderson, W. A., and Borns, H. W., Jr. (eds.), Neotectonics of Maine: Maine Geological Survey, Bulletin 40, p. 43-67.